

IN THE CLAIMS:

The status of each claim that has been introduced in the above-referenced application is identified in the ensuing listing of the claims. This listing of the claims replaces all previously submitted claims listings.

1. (Currently amended) A field emission tip, comprising a structure comprising at least one of semiconductive material and conductive material, the structure including:

a base with:

a central region including a periphery with a substantially vertical sidewall; and  
a tapered portion surrounding the central region and including an inclined surface  
extending toward an exposed end of the central region; and  
an apex at the exposed end of the central region of the base.

2. (Previously presented) The field emission tip of claim 1, wherein a height of the at least substantially vertical sidewall exceeds a width of the central region.

3. (Previously presented) The field emission tip of claim 1, wherein the apex comprises a low work function material.

4. (Previously presented) The field emission tip of claim 3, wherein the low work function material is selected from the group comprising aluminum titanium silicide, titanium silicide nitride, titanium nitride, tri-chromium mono-silicon, and tantalum nitride.

5. (Previously presented) The field emission tip of claim 1, wherein the apex has a lateral width of less than about 100 nm.

6. (Previously presented) The field emission tip of claim 1, wherein the apex has a lateral width of less than about 50 nm.

7. (Currently amended) A field emission tip, comprising a structure comprising at least one of semiconductive material and conductive material, the structure including:

a base with:

a central region including a periphery with a substantially vertical portion; and  
a tapered portion including an inclined surface that extends toward an exposed end of the central region, the tapered portion surrounding the substantially vertical portion; and  
an apex at the exposed end of the central region of the base, the apex having a lateral width of less than about 100 nm.

8. (Previously presented) The field emission tip of claim 7, wherein the apex has a lateral width of less than about 50 nm.

9. (Previously presented) The field emission tip of claim 7, wherein the apex comprises a low work function material.

10. (Previously presented) The field emission tip of claim 9, wherein the low work function material is selected from the group comprising aluminum titanium silicide, titanium silicide nitride, titanium nitride, tri-chromium mono-silicon, and tantalum nitride.

11. (Previously presented) A field emission array, comprising:  
a substrate; and  
at least one substantially pointed tip protruding from the substrate, the at least one substantially pointed tip comprising at least one of a semiconductive material and a conductive material, the at least one substantially pointed tip including a periphery, at least a first portion of the periphery being oriented substantially perpendicularly relative to the substrate and at least a second portion at an end of the at least one substantially pointed tip of the periphery being oriented at an angle relative to the substrate to form an apex; and

at least one surrounding element including a surface that tapers toward an exposed end of the at least one substantially pointed tip and that surrounds at least the first portion of the at least one substantially pointed tip.

12. (Previously presented) The field emission array of claim 11, wherein the first portion of the periphery is adjacent the substrate.

13. (Previously presented) The field emission array of claim 11, wherein a height of the first portion of the periphery relative to the substrate exceeds a width of the at least one substantially pointed tip.

14. (Previously presented) The field emission array of claim 11, wherein an end of the at least one substantially pointed tip comprises a low work function material.

15. (Previously presented) The field emission array of claim 14, wherein the low work function material is selected from the group comprising aluminum titanium silicide, titanium silicide nitride, titanium nitride, tri-chromium mono-silicon, and tantalum nitride.

16. (Previously presented) The field emission array of claim 11, wherein the at least one surrounding element comprises redeposition material adjacent to at least the first portion of the periphery.

17. (Previously presented) The field emission array of claim 11, wherein an apex of the at least one substantially pointed tip has a lateral width of less than about 100 nm.

18. (Previously presented) The field emission array of claim 11, wherein an apex of the at least one substantially pointed tip has a lateral width of less than about 50 nm.

19. (Currently amended) A field emission display, comprising:

an anode display screen;

a cathode spaced apart from the anode display screen, the cathode including:

    a substrate;

    at least one substantially pointed tip protruding from the substrate, the at least one substantially pointed tip comprising at least one of a semiconductive material and a conductive material, the at least one substantially pointed tip including a periphery, at least a first-base portion of the periphery being oriented substantially perpendicularly relative to the substrate and at least a second-tip portion of the periphery being oriented at an angle relative to the substrate;

    at least one surrounding element that tapers toward an exposed end of the at least one substantially pointed tip and that surrounds at least a-the base portion of the periphery of the at least one substantially pointed tip; and

    a gate through which the at least one substantially pointed tip is exposed;

a substantial vacuum between the anode display screen and the cathode; and

a voltage source associated with the anode display screen, the gate, and the cathode to provide a potential difference between the cathode and the gate and between the cathode and the anode display screen.

20. (Currently amended) The field emission display of claim 19, wherein at least the first-base portion of the periphery is adjacent the substrate.

21. (Currently amended) The field emission display of claim 19, wherein a height of at least the first-base portion of the periphery relative to the substrate exceeds a width of the at least one substantially pointed tip.

22. (Previously presented) The field emission display of claim 19, wherein a top portion of the at least one substantially pointed tip comprises a low work function material.

23. (Previously presented) The field emission display of claim 22, wherein the low work function material is selected from the group comprising aluminum titanium silicide, titanium silicide nitride, titanium nitride, tri-chromium mono-silicon, and tantalum nitride.

24. (Previously presented) The field emission display of claim 19, wherein the at least one surrounding element comprises redeposition material adjacent to at least the first portion of the periphery.

25. (Previously presented) The field emission display of claim 19, wherein an apex of the at least one substantially pointed tip has a diameter of less than about 100 nm.

26. (Previously presented) The field emission display of claim 19, wherein an apex of the at least one substantially pointed tip has a diameter of less than about 50 nm.